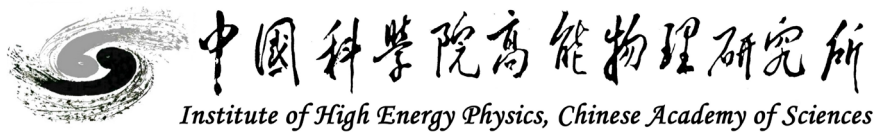


Classification using PFN in CEPC

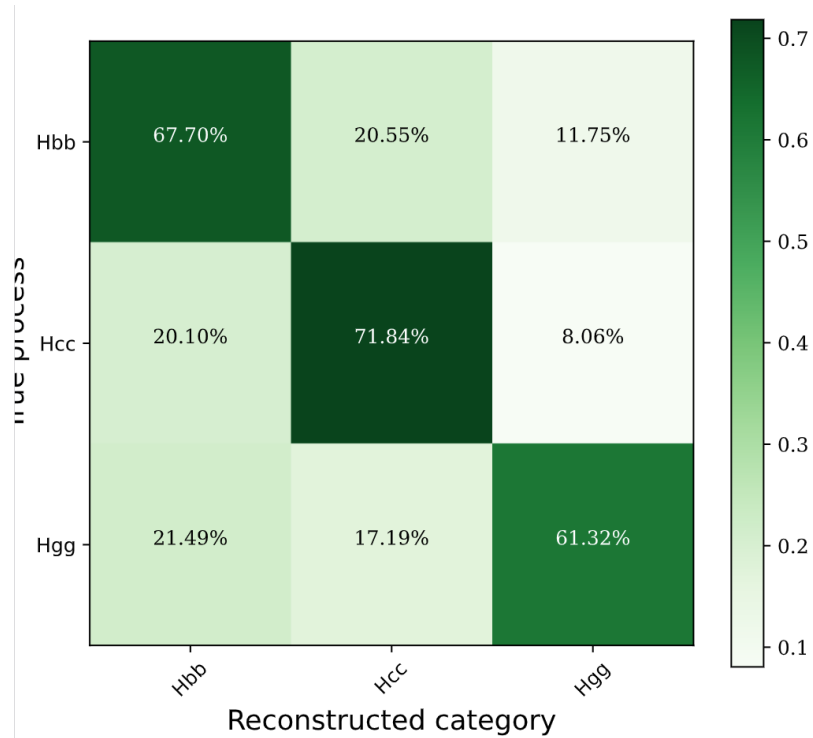
Xiaotian Ma, Zuofei Wu



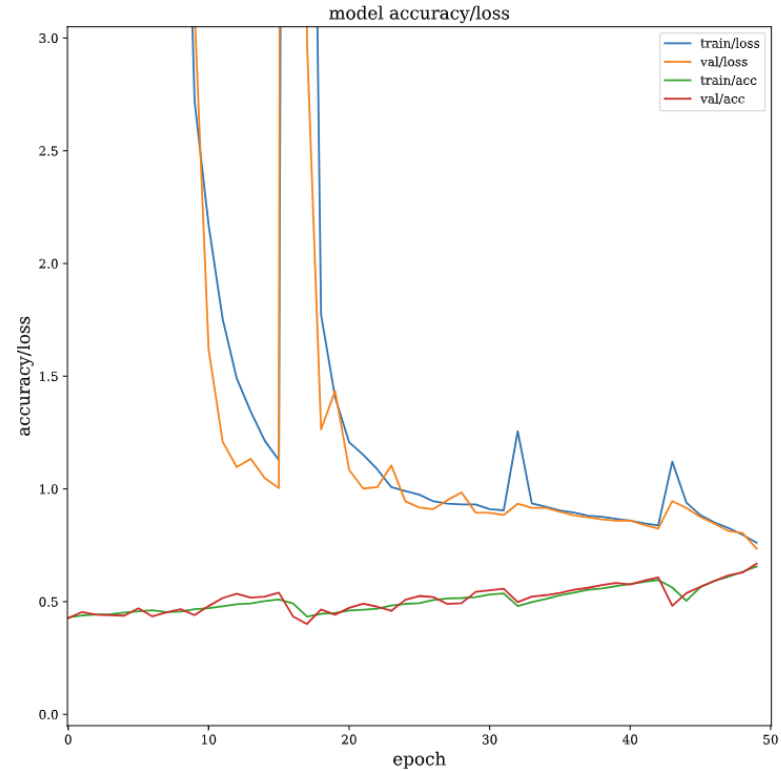
Outline

- Samples:
 - 150k for each category, (training: validation: test sets) = (8:1:1)
 - Signal: $H \rightarrow b\bar{b}$, $H \rightarrow c\bar{c}$, $H \rightarrow gg$ (CEPCSW_tdr25.1.0)
 - No event selection applied.
- Training variables:
 - Energy, momentum, $\cos\theta$, ϕ , D_0 , Z_0 , (w/o PID)
- Training parameters:
 - Φ _sizes: (64, 64, 50), F_sizes: (64, 64, 40)
 - Fully connected layer: ReLU activation function and adam optimizer
 - Output layer: SoftMax activation function
 - loss function: cross-entropy
 - Epoch: 50, Learning rate: 0.001, Batchsize: 1000

Model Performance(with PID)



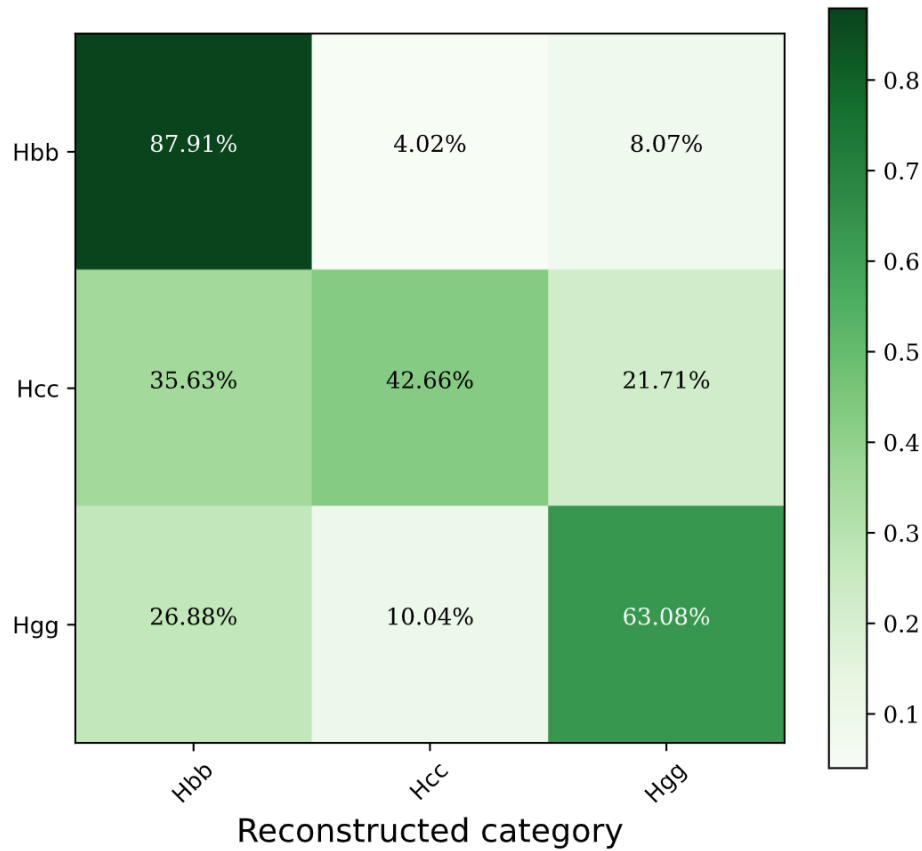
The migration matrix



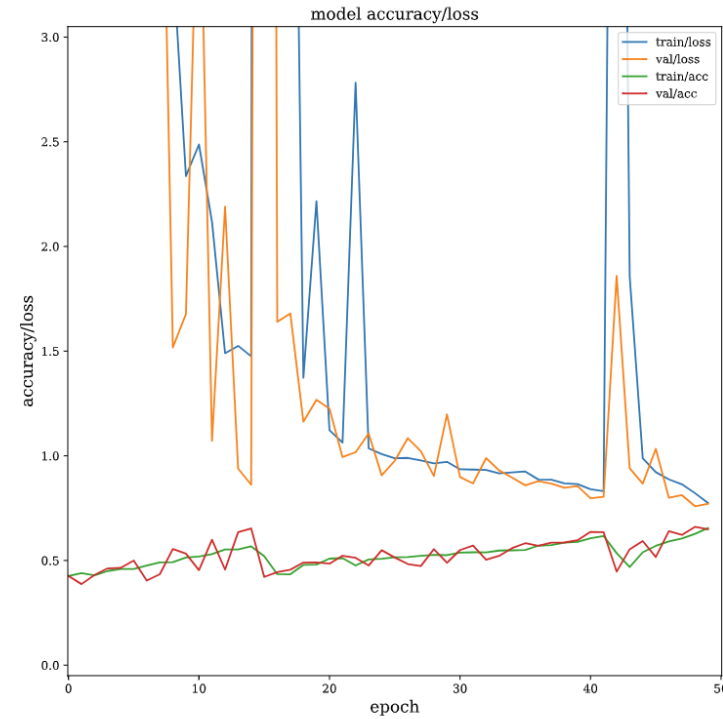
The Loss-accuracy vs epochs curves

bk

Model Performance(without PID)



The migration matrix



The Loss-accuracy vs epochs curves

➤ 15W for each category.

➤ Also found exception value in nutuple.